Case-study: Analyzing the Supermarket Sales for Drawing Inferences

Introduction

The growth of supermarkets in most populated cities are increasing and market competitions are also high. In order to understand what is driving the sales, XYZ supermarket has collected data on historical sales across three different branches spanning three months and directed the Analytics team to discover insights on the sales drivers, the company's turnover, and growth.

Learning Outcomes

· Analyze sales data using MS Excel functionalities and draw meaningful insights on the supermarket operation.

· Use MS Excel efficiently while dealing with various business problems to facilitate effective decision making.

Graded Assessment | Background Information and Scenario

Background Information

XYZ is a supermarket retail chain that has been in business for a little over a decade. With three branches in operation, they wish to investigate their growth prospects and shortcomings in their functions. They have six product lines in place - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel.

Scenario

The company has set the wheels in motion to open a new branch and is relying on the analytics results to further propel its growth. Also, XYZ wishes to develop new products and is reliant on this investigation procedure to kickstart the R&D depending on the outcomes.

Graded Assessment | Problem Statement / Business Objectives

Analyze the three-month sales of the supermarket chain and depict the strategies that can be implied in the near future to improve product sales along with the customer-provided ratings, with the ultimate objective of catering to increased business performance and company growth.

Graded Assessment | Data, Information for Case Analysis

Data is provided as an xlsx. file in the ABADS Week 2_Case-Study_Post-Assessment Data folder. Below is the source and attribute information.
Source link: **https://www.kaggle.com/datasets/aungpyaeap/supermarket-sales**

Data Description

Invoice id: Computer-generated sales slip invoice identification number
Branch: Branch of supercentre (3 branches are available identified by A, B, and C).
City: Location of supercentres
Customer type: Type of customers, recorded by Members for customers using member card and Normal for without member card.
Gender: Gender type of customer
Product line: General item categorization groups - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel
Unit price: Price of each product in $
Quantity: Number of products purchased by customer
Tax: 5% tax fee for customer buying
Total: Total price including tax
Date: Date of purchase (Record available from January 2019 to March 2019)
Branch: Branch of supercentre (3 branches are available identified by A, B, and C).
City: Location of supercentres
Customer type: Type of customers, recorded by Members for customers using member cards and Normal for those without membership cards.
Gender: Gender type of customer
Product line: General item categorization groups - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel
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Unit price: Price of each product in $
Quantity: Number of products purchased by customer
Tax: 5% tax fee for customer buying
Total: Total price including tax
Date: Date of purchase (Record available from January 2019 to March 2019)
Time: Purchase time (10am to 9pm)
Payment: Payment used by customer for purchase (3 methods are available – Cash, Credit card, and Ewallet)
COGS: Cost of goods sold
Gross margin percentage: Gross margin percentage
Gross income: Gross income
Rating: Customer stratification rating on their overall shopping experience (On a scale of 1 to 10)
Payment: Payment used by customer for purchase (3 methods are available – Cash, Credit card, and Ewallet)
COGS: Cost of goods sold
Gross margin percentage: Gross margin percentage
Gross income: Gross income
Rating: Customer stratification rating on their overall shopping experience (On a scale of 1 to 10)
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Graded Assessment | Questions, Deliverables, and Rubrics

Questions
1. Certain records under the "Date" column aren't recognized as date types. How do you solve this?
2. Sort the data and find the highest-rated product line?
3. Highlight those values whose quantity sold is greater than 6 units in green colour?
4. Calculate the average gross income across all three branches?
5. Create a new column called "Income Status" wherein the values would be "Goal Achieved" if the gross income value exceeds the average gross income computed in the previous step; else, it would be "Need Improvement.
6. Compute the total quantity sold for each branch of the supermarket chain. What can you conclude from these results?
7. What is the average rating for each product line.
8. What is the customer type who placed a purchasing order with the invoice ID 868-52-7573 ?
9. Use suitable visualization(s) available in Excel to analyze the gender-wise average rating given by the customers. What is your take on the displayed results?
10. Visualize the total quantity sold over the span of three months in relation to the product line. Write down the inferences which you can glean from the same.

Deliverables and Rubric
● Required deliverables – an Excel workbook with each sheet dedicated to the solution of each question; the inferences, if applicable, are to be included in the respective sheets
● Submission templates – N/A
● Student facing and faculty rubrics – Total of 20 points where:
- Questions 1 and 2 carry 1 point each – 2 points cumulative
- Questions 3 to 8 carry 2 points each – 12 points cumulative
- Questions 9 and 10 carry 3 points each – 6 points cumulative

Note: There's no one-correct-way for tackling this exercise, but the outputs must be in accordance with the sample solution provided with the dataset.

Submission